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The Veterinary Surgeon in Relation to the Control of a Pure Milk Supply.*

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The problem of providing a Pure Milk Supply is one which is engaging the attention of all bodies and organisations concerned in matters pertaining to public health the world over, and not the least amongst these is the Veterinary Profession. Indeed, so far as the relationship of individual bodies to this important question is concerned, it may be claimed that veterinarians occupy the most prominent place. Having such an important bearing on public health, the subject of control of a pure milk supply must necessarily resolve itself largely into one of administration under the authority of whatever legislative enactments are provided. It is proposed, therefore, in this paper to outline the measures adopted in the State of Victoria, and to include some references as to certain means of securing a pure milk supply which are in force in the United Kingdom and America.

The first serious attempt in this State to deal with the question was the passage of the Milk and Dairy Supervision Act, 1905, which was designed to regulate the production and sale of milk both for consumption as milk and for the manufacture of dairy produce. This Act is administered by the Minister of Agriculture as the political head of that Department, and applies to the principal centres of population, viz.:—The Metropolis, Ballarat, Bendigo, Geelong, as well as the Castlemaine and Port Fairy areas. Certain other lesser populated centres which have been proclaimed milk areas for the purposes of the Act are also included, and power is given to proclaim and extend the Act to other areas and municipal districts.

The executive staff which carries out the provisions of the Act consists of a Chief Veterinary Inspector, Veterinary Inspectors and Supervisors, the last named having districts specially assigned to them. The principal duties of Supervisors are to confer with and advise owners of dairy farms, dairies and factories on all matters connected with their premises utensils, milk and dairy produce, food and water supply, and farm animals; and to carry out periodical inspections, and report with regard to them. Supervisors are also empowered to order improvements as regards construction and sanitation of dairy buildings and utensils where deemed necessary. They may also take samples of dairy produce, water, fodder, or of any materials used in connection with the preparation of dairy produce for examination, seize any unwholesome dairy produce or utensils, and forbid the removal from licensed premises of any dairy produce or utensils they think fit. Power is also given to order the removal or isolation of any person on licensed premises who is affected with contagious or infectious disease likely to contaminate dairy produce.

With regard to dairy cattle, Supervisors may prohibit for a period not exceeding fourteen days the use of any cow for the production or preparation of any dairy produce for sale, if of the opinion that such dairy produce would be deleterious to health or unwholesome. In this way they act as scouts for veterinary officers, and conserve their time for questionable cases only, and relieve such officers of the humdrum work of inspection.

DUTIES OF VETERINARY INSPECTORS.

The duties of Veterinary Inspectors are in general to exercise control of the work of the Supervisors in whose districts they are detailed from time to time for duty, and, in particular, to deal with the questions of sanitation and hygiene, and determine the action to be taken with regard to cows prohibited by the Supervisors. The whole of the work of the staffs is co-ordinated and directed by the Chief Veterinary Inspector under the authority of the Minister of Agriculture.

As the law on the subject of the milk supply is being outlined here, the essentially veterinary aspect of the question will be dealt with later.

Having been in operation for approximately fifteen years, it was recognised that, notwithstanding the great improvement effected under the Dairy Supervision Act in the health and type of the dairy herds, as well as sanitation and general management of the dairy farms, the standard of milk, particularly as actually supplied to the consumer, still left much to be desired. Accordingly, to make further and better provision for the supply of pure milk, a new Act, known as the Milk Supply Act, was passed last year, and has now come into operation. In addition to the foregoing purpose, this Act has in some important respects amended the Dairy Supervision Act, 1915. As a legal enactment, the Milk Supply Act is read and construed as one with the Dairy Supervision Act, but it applies to the Metropolitan area only for the present. Its provisions may, however, be extended at any time to any other municipal districts at the request of the Councils of the municipalities. As in the case of the Dairy

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Supervision Act, this Act is administered under the authority of the Minister of Agriculture.

Provision is made for the appointment of a Milk Supply Committee for the purposes of the Act, which comprises the following personnel:—

(*a*) The Chief Veterinary Inspector of the Department of Agriculture, who, by virtue of his office, is Chairman.

(*b*) A representative of the Commission of Public Health.

(*c*) A legally-qualified Medical Practitioner.

(*d*) A representative of the Railway Department.

(*e*) Two councillors representing Council of municipal districts in respect of which the Act applies, but who are not producers or distributors of milk.

(*f*) A representative each, of the Milk Producers and Milk Distributors.

The authority for the formation of this Committee is undoubtedly one of the most important provisions of the new Act, as the representative character of its personnel not only makes for wise and sympathetic administration, but also safeguards the interest of every person who handles milk from the producer to the consumer.

The functions of the Milk Supply Committee are to prepare regulations under the Act, publish reports, information or advice as to the means to be adopted in connection with the carriage, delivery, storage, keeping, preservation, treatment and use of milk, the prevention of deterioration and contamination, also to report to the Minister upon matters affecting the supply of milk and any amendments in the law considered advisable, and on questions referred to the Committee by the Minister. Authority is also invested in the Committee to make any enquiries for the purpose of exercising its powers, including the taking of evidence. The Committee is responsible for drawing up regulations to secure the sanitary construction and cleanliness of milk depots or dairies, and the appliances and utensils used; the method of treating and bottling milk; the maximum temperature for keeping milk in at any and all stages from the producer to the consumer, and the grades of milk supplied. When grades of milk have been prescribed, the Committee may issue certificates to the producers supplying the milk or to the vendors of the milk, specifying the grade authorised to be provided or sold. It is provided that the milk containers shall be labelled with the grade of milk sold, and the grade shall be stated on the invoice or account, which statement shall be deemed a warranty.

Under the Act, Councils of municipal districts are empowered to establish milk depots, to buy and treat milk, to sell to dairies or factories, licensed under the Dairy Supervision Act, but not to distribute retail where such depots are established. The Milk Supply Committee will establish a grade or grades for the municipality, and no person may sell within the municipal district milk unless it is of the grade prescribed, and has been treated at that or some other milk depot.

One other important provision of the Milk Supply Act is the establishment of a laboratory, now in course of erection at the Veterinary School and Live Stock Research Institute, connected with the University of Melbourne. This laboratory is for the purpose of conducting researches into matters relating to milk, including chemical, physical and bacteriological examinations and any other investigations the Milk Committee may require for determining and maintaining the grades of milk, the cost being borne in equal shares by the State Government and Councils of municipal districts concerned.

Administration and Executive Duties of the Veterinarian.

Having indicated the principal features of the legislative provision which bears on the subject of this paper, the question as to how they can best be administered may now be considered with due regard to efficiency, economy and expediency.

In most countries throughout the world where agricultural and live stock industries are of some importance, there usually exists a State Department, Board or Bureau of Agriculture which includes a Veterinary Branch, whose special function is to conserve the health of the live stock of the country; and, where dairying operations are carried on to any extent, the supervision of the health of the dairy cattle must of necessity form a considerable part of this duty. We have thus reached the first and extremely important stage as regards the relationship of the veterinarian to the control of a pure milk supply. Whatever scheme may be adopted or contemplated to ensure that a milk supply is all that it should be, there can be no question that the first essential is that the dairy herds from which the supply is provided must be healthy and in good bodily condition, and it is fairly obvious that the duty of dealing with these matters devolves on the veterinarian. There is, however, some difficulty in determining how he may be most satisfactorily employed in the discharge of this duty. If it were practicable to adopt a counsel of perfection, it will be readily agreed that a staff of veterinary surgeons, sufficient for all requirements, specially organised and employed whole time as a State service, would go far in that direction. Unfortunately, such a service, however desirable, usually proves to be too costly, and it consequently becomes necessary to devise some other expedient which will meet all requirements at a cost somewhere within reason. Moreover, matters of State policy and conditions peculiar to the country concerned have to be carefully weighed, as it is not unlikely that a scheme which answers well in one country may for various reasons not do so in another.

In the State of Victoria, the system adopted, as already indicated, is that of employing a staff of Supervisors and Veterinary Inspectors. The Supervisors are paid on a much lower scale than the professional officers, consequently it is possible to employ

them in considerable numbers. The higher-paid Veterinary Inspectors are of necessity few in number. There are actually sixty (60) Supervisors and seven (7) Veterinary Officers engaged in the work. If the staff consisted of Veterinary Inspectors alone, not less than sixty (60) would be required; so that the cost may be left to the imagination. Moreover, the Veterinary officers have other duties to perform in connection with the Diseases of Stock and the Horsebreeding Acts.

The Supervisors are not, in any sense of the word, experts in veterinary science, but in addition to their qualifications in matters pertaining to dairy practice, dairy farm management, including the types, breeding, feeding and handling of dairy cattle, they are required to have elementary knowledge of the contagious and other diseases met with in dairy farm animals. In the course of their inspections they examine each individual cow in the herd, and on finding any departure from the normal in health and condition, they are empowered to prohibit the use of any cow, as already stated, for a period of fourteen days. The Supervisors may thus, to use an illustrative expression, be said to do the "spade work" for the Veterinary Inspector.

The examination conducted by the Veterinary Inspector is clinical mainly, and by no means confined to the condition for which a cow is temporarily prohibited by a Supervisor. Any biological test may be applied for diagnostic purposes, such as tuberculin testing, but this is not universally carried out except in certain herds from which a special milk supply is drawn—for infants; but in individual cases, where there is a difficulty in diagnosing suspected tuberculosis, the test is used. There can be no question that the systematic tuberculin testing of dairy herds is eminently desirable, and it is hoped that in the near future it will be possible to undertake this work on a more extensive scale with the object of establishing tubercle-free herds on similar lines to the Accredited Herd Plan in the United States, which provides that the herd shall contain no animal found to be affected with tuberculosis after two annual or three semi-annual tests. Reactors must be eliminated from the herd, and they are not subject to a re-test, for the principle adopted is "once a reactor always a reactor"—a principle which might, with advantage, be followed by all veterinarians in whatever professional work they are engaged.

Sufficient has been said of the function of the veterinarian in regard to the health of dairy herds. It might now be contended that his sphere of usefulness ends therewith, but before accepting this it would be well to explore the field in the direction of administration of the legal measures which are in force.

From the pure food standpoint, it may be argued that the Public Health Authorities should control this all-important question. Grading of milk for the purpose of providing cow's milk of high hygienic quality has been the concern of Public Health Departments since this subject was first considered. In England and Scotland the Health Authorities have defined the various grades of milk for the purposes of which the services of veterinarians are required to carry out the necessary tuberculin testing of the herd supplying them and supervise the general health of the animals, but it is somewhat remarkable to find that in England the only provision made as regards tuberculosis is that no person shall knowingly sell or expose for sale the milk of a cow suffering from tuberculous disease of the udder. The inference to be drawn from this is that the cow may have it anywhere else, and in any degree, and yet her milk may be sold or offered for sale without let or hindrance. One can only conclude that such a weak and obviously harmful provision is the result of the Health Authority dealing with a matter that it knows very little about.

With regard to the administration of the Milk Supply Act in Victoria, it is not very difficult to forecast what would be likely to happen if the Act were administered by the Public Health Commission. Rules and regulations under the Act would be made by that Authority. Its own officers would have to carry out some of these, whilst others necessarily were thrust upon officers of the Department of Agriculture. A situation amounting to dual control must inevitably have been created by such means, and with it no little confusion and friction.

A most important and necessary feature in connection with regulations made under the authority of an Act of this kind is that they must be so constructed that they are practicable of application. They must also be sympathetically as well as efficiently carried out. The decision of the Legislature to entrust the administration of this Act solely to the Department of Agriculture would appear to be amply supported by the fact that a thoroughly organised and efficient staff of officers trained and experienced in the operations of the Dairy Supervision Act was already in existence, and, therefore, better equipped to carry out the provisions of the new Act. These officers possess a full knowledge of the conditions under which milk is produced and distributed in the State, as well as having a due appreciation of the difficulties with which the dairy farmer and dairyman have to contend.

Such circumstances could hardly be otherwise than conducive to a rational and commonsense carrying out of the provisions of the Milk Supply Act, and, finally, there is the outstanding merit of the Act being entirely administered by a single authority.

"Clover," the world's oldest horse, died recently in his 53rd year. He was born June 15th, 1871, and owned by Rev. Uriah Myers, of Catawissa, Pa. Two years ago "Clover" was exhibited at Madison Square Garden. The New York Jockey Club recently voted him a pension. "Clover" was fifteen and one-half hands high, trotting-bred, and had a full mane and all of his teeth. Mrs. Warren G. Harding sent a cheque for $100 to the Rev. Mr. Myers a short time ago, so that "Clover" might be assured all the comforts of life during his old age.

The body will be mounted in the American Museum of Natural History, in New York City.

Some Helminthological Problems of the Pacific Regions.

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Habronemiasis of Horses.*

The term Habronemiasis is applied to a nematode infestation of the horse produced by one or more of three species of the genus Habronema, the adult worms always being found in the stomach.

The genus Habronema belongs to the super-family Spiruroidea Railliet, 1915, a super-family in which development in perhaps all cases requires an intermediate host.

Three species of Habronema occur in the horse:—*Habronema megastoma* (Rudolphi, 1819), *Habronema microstoma* (Schneider, 1866), and *Habronema muscæ* (Carter, 1861).

Both morphologically and because of differences in development and its behaviour in the primary host, *Habronema megastoma* is marked off from the other two species. *Habronema megastoma* is the smallest of the three species, males being from 7-10 mm. long, while the females are 10-13 mm. Spicules in the male are 240 and 400μ long. Eggs, 45-55μ long and 11·6-14μ wide. Width of embryo, 6·6μ. Eggs contain motile embryos when leaving the uterus of female. Adults are only found in tumours of the stomach wall and not free on the gastric mucous membrane.

Habronema muscæ and *Habronema microstoma* both morphologically and in their behaviour in the final host present a close resemblance to each other. *Habronema microstoma* was described by Schneider in 1866 as *Spiroptera microstoma*, but it was not till 1911 that Ransom differentiated the two species, and described the adult *Habronema muscæ* for the first time. The larvæ of *Habronema muscæ* were found as parasites of the house fly in Bombay by Carter in 1861. The two species may be distinguished by the following characters. *H. microstoma* is slightly the larger, measuring, females 15-25 mm. by 300-500μ, males 9-16 mm. by 250-300μ; *H. muscæ* being, females 13-22 mm. by 250-400μ, males 8-14mm. by 250-300μ. The pharynx in *H. microstoma* is relatively larger and wider, and shows a tri-dentate process springing from both dorsal and ventral wall, lacking in *H. muscæ*. In the males, in addition to a slight difference in arrangement of the pre- and post-anal papillæ, there is marked difference in the size of the spicules. Thus in *H. microstoma* they are 800μ and 350μ, while in *H. muscæ* the left spicule is extremely long and slender, being 2·5 mm. long and only 5μ thick in its middle, while the right spicule is 500μ long.

The females also may be distinguished by the fact that in *H. microstoma* the vulva is large and prominent, while the distal part of the vagina forms an S-shaped curve, which is surrounded by a globular mass of muscular tissue. In *H. muscæ* the vulva is small, the vagina does not form this S-shaped curve and the muscular mass is lacking. The eggs of both in their earliest stages are from 40-50μ long by 10μ wide. In the uterus those of *H. muscæ* grow from 80-90μ long by 6-7μ wide, while those of *H. microstoma* are 110μ long by 6μ wide. Both contain very active motile embryos at the time of oviposition. The eggs and embryos of all species of *Habronema* are thus very small, and this in conjunction with their transparency makes their detection in fæces very difficult.

Life History of Habronema. In 1861 Carter discovered a larval nematode in house flies in Bombay, and named it *Habronema muscæ*. Nothing was known of its relationship to any adult worm till Ransom (1) in 1911 proved that it was the larval stage of an adult worm occurring in the stomach of the horse. He found that stages in the life cycle were passed in the pupa and adult of *Musca domestica* till a stage was reached in which the larva could develop to the adult worm when taken into the stomach of the horse.

Further researches were carried out by Hill (2) and Bull (3) in Victoria and South Australia respectively, which confirmed Ransom's work, and at the same time proved that *Habronema megastoma* and *H. microstoma* also required to pass several stages of their life cycle in flies.

The main features in this life cycle are as follows. Motile embryos, still covered with a shell membrane, pass out of horse in the fæces. They then make their way into fly larvæ, but whether actively or passively by ingestion is not known. Larvæ may remain alive in fæces for eight to fourteen days, while the fly larvæ may become infected from forty-eight hours up to nine days after hatching. The next stages are met with in the fly pupæ, and further development takes place after the adult fly emerges. The final stage larvæ are commonly met with in the head, and when ready to leave the fly, in the proboscis. While *H. muscæ* and *H. megastoma* are commonly found to develop in *Musca domestica*, *H. microstoma* is found in *Stomoxys calcitians*, and only very rarely and probably accidentally in *M. domestica*. Harvey Johnston (4) has found that *H. muscæ* and *H. megastoma* are also found in *Musca hilli*, *M. terræ-reginæ*, *M. fergusoni* and *M. vetustissima*, and experimentally in *Sarcophaga misera* and *Anastellorhina augur*. It is unlikely, however, that the latter two species would act as hosts naturally.

Roubaud and Descazeau (5) have recently stated that while *H. muscæ* and *H. microstoma* pass the early stages in the intermediate hosts in the cells of the adipose tissue, *H. megastoma* is found in the Malpighian tubules, in which it causes tumour formation. Thus both have an exclusive environment for development; and *H. megastoma* seems to foreshadow its behaviour in its final host, where it also gives rise to tumour.

Method of Infection of Final Host. Three possible methods of infection of the final host (the horse) are indicated. (1) By ingestion of flies infested with final stage larvæ; (2) by the escape of larvæ from

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the proboscis of the fly; (3) by inoculation of larvæ under the skin. While ingestion of flies may serve as one source of infection, this does not suggest itself as a very convenient method for the propagation of the species, and it would appear likely that, were this the only method of infection, Habronema would not be as common as it is in this country. In support of this theory, however, is the fact that Habronema larvæ may survive in dead flies for two days. That direct infection from the fly to the horse is usual is supported by the fact that larvæ removed from flies only remain alive for a limited time, so that there remains the second method of direct infection by the escape of larvæ from the proboscis. While Ransom and Hill did not find evidence to support this, subsequent writers, including Harvey Johnston and Roubaud and Descazeau (11), find that this occurs spontaneously under certain conditions. These conditions are that the fly must be feeding on surfaces having a suitable degree of warmth and moisture, such as are met with on mucous membranes and moist wound surfaces. Only those larvæ which pass thence to the stomach (that is, those that are liberated on the buccal mucosa) develop into adults. Those which escape on to the conjunctiva or other mucous membranes or on to wound surfaces die, although they may first bring about serious pathological changes. Larvæ may also escape from flies when feeding on animals other than the horse, and in man and experimental animals, while death soon occurs, they may cause passing irritation, conjunctivitis, etc. There is little doubt that the above is the normal method of infection. Since, however, *Habronema microstoma* is transmitted by *Stomoxys calcitrans*, which normally does *not* feed on mucous membranes, there would at first appear to be some difficulty in providing for the propagation of this species, unless they were infected under the skin while the fly was sucking blood. It has been found, however, that the presence of the larvæ in the proboscis renders the Stomoxys unable to pierce the skin and suck blood, so that it is reduced to obtaining nourishment by absorbing fluids from wound surfaces and mucous membranes, thus ensuring the completion of the life cycle as in the other two species.

Lesions produced by adult Habronemas. In the past the attention given to the pathological importance of Habronema was slight, but a more careful consideration of the question would lead us to suppose that the lesions occasioned by them may at times be serious.

The lesions caused by *Habronema megastoma* differ from those caused by the other two species in that it is never naturally found free on the mucous membrane, but is always situated in tumours in the sub-mucosa. Larvæ, when reaching the stomach, make their way into the openings of the gastric glands, and the irritation they cause leads to the production of inflammatory fibrous tissue resulting in the formation of tumours of varying size. Running through these are canals which open into the lumen of the stomach, each tumour always having one or more orifices opening from it. Pressure on such a tumour forces out numerous adult worms, while the pus in which they are generally bathed contains large numbers of motile embryos. While these tumours are not generally considered to produce any serious results, there must always be a certain destruction of the glandular epithelium. In advanced cases, however, the inflammatory changes may involve the muscularis, while at the same time abscess cavities may be formed. The myositis so occasioned, where a considerable area of the stomach wall is involved, may produce serious interference with muscular contraction, and thus produce interference with normal digestive processes. Cases are also recorded where such abscesses have ruptured into the peritoneum with subsequent fatal peritonitis, and there is always danger of this, owing to the weakened muscular wall, in cases of impaction of the stomach. Finally, the canals of tumours would be a very likely path of infection with pathogenic micro-organisms. In Victoria, splenic abscesses of habronemic origin have been reported, often with fatal results.

Habronema microstoma and *H. muscæ* are both found lying free on the mucous membrane of the pyloric half of the stomach. When present in large numbers they may form a felt-like mass covered with a thick mucous secretion, so closely associated with the mucosa that vigorous scraping is necessary to detach them. While there seldom appears to be any acute inflammatory processes set up, the mucous membrane is often found in a markedly catarrhal condition. While this gastric catarrh, if transient, might not be serious, the very fact of its chronicity is important, and may result in all the symptoms associated with this condition. The thick mucous layer often covering the whole of the glandular epithelium must necessarily lead to a diminution of its secretion, and hence interference with normal digestion is brought about. Such changes may result in a liability to fermentation of food, producing chronic dilatation of the stomach wall, with consequent weakness and loss in contractility of the musculature.

For these reasons, then, we are unable to overlook Habronema as a predisposing cause of serious pathological processes.

It is true that where horses are well fed and not subject to serious exertion they may harbour numbers of Habronema without apparent harm. Where, however, they are subject to long and continued exertion under arduous circumstances, such as cavalry experience in war-time, the loss in efficiency might be serious.

Recently a veterinary officer in India (6) expressed the opinion that sixty per cent. of debility cases in Australian remounts were due to Habronema. While he did not adduce any scientific evidence in support of this statement, nevertheless, as the opinion of an army officer of experience, and of one who has paid some attention to helminthic disorders, it deserves consideration. The percentage given was for horses which were not found infested with strongylids.

Lesions caused by Larvæ. In 1859 Ercolani discovered a larval nematode in the subcutaneous fibrous tissue of skin lesions in the horse, such lesions being known as *summer sores.* Various other writers have described similar conditions. Railliet, in 1915, discusses the finding by Descazeau (10) of larvæ, belonging to the super-family Spiruroidea, in skin lesions in Brazil.

Bull (7), in 1916, described the finding of habronema larvæ in lesions of the external genitalia of horses in South Australia, while Lewis and Seddon (8) demonstrated similar larval remains in granulomatous growths involving the conjunctiva. Experimental evidence has supported the theory that these lesions are caused by the larvæ of Habronema spp., such larvæ being liberated on the sites affected while the fly is feeding there.

The lesions so found present some differences according to the site in which they occur, but all recent cases appear to show small areas of necrotic tissue, which on dissection and microscopic examination reveal the presence of larval remains in ovoid spaces in the mass. Where these lesions occur on the conjunctiva the necrotic areas are found in a soft vascular mass of fibrous tissue. Those found on the penis are frequently of much firmer nature, though here also the surface is ulcerated and shows a vascular granulation tissue. A feature of many of these tumours is their sudden appearance and rapid growth for a short time, after which they may continue to increase in size slowly. The lesions definitely known to be caused by Habronema larvæ in the temperate parts of Australia appear to be more or less restricted to the glans penis, sheath and conjunctiva. In tropical Australia, especially the Northern Territory (9), there exists a condition commonly known as Swamp Cancer, occurring in horses often far from habitations, in which large granulomatous masses with ulcerating surfaces are met with on the limbs and body, and which are of an extremely chronic nature, while much larger areas are involved than in habronemic granuloma of South Australia. Bull, who has examined these growths, found typical necrotic areas, but was unable to demonstrate the presence of larval remains. He considered that there is a great possibility that they were due to Habronema, and explains his inability to demonstrate larval remains as being perhaps due to the fact that no recent lesions were examined. The fact that *M. hilli* and *M. furgusoni* are met with far afield would allow of horses becoming infected in the absence of *M. domestica*, and would account for the presence of Habronema lesions in horses which are not stabled or kept near houses. In the Solomon Islands also there exists a granulomatous affection of a chronic and apparently painless nature, which attacks the pasterns only. Such growths are of extremely firm fibrous tissue, up to a cricket ball in size. Bull found larvæ with longitudinal striations and spinous tipped tail in necrotic areas in these lesions. Throughout tropical Africa granulomatous sores with ulcerating surfaces are found on the forelimbs and inner canthus of the eye, in which larval remains are also found, while in South America similar lesions on the external surface of the extremities and neck have also been found to contain larvæ. Roubaud and Descazeau (11) have recently produced typical summer sores by experimental infection with Habronema larvæ. There is little doubt that the majority of these conditions are caused by larvæ of Habronema, but the question of the sites on the body of such lesions in different localities is interesting, probably depending either on the habit of the fly which is locally the carrier of the larvæ, or on some local conditions, as, for instance, vegetation, which produce wounds permitting of infection on the sites found.

It must not be thought that typical granulomatous lesions are produced in all cases where Habronema larvæ escape on to mucous or wound surfaces. Experimentally it has been found that in some cases there is merely slight tumefaction of the site, or where the conjunctiva is involved, a passing conjunctivitis. For this reason the seasonal conjunctivitis occurring in man in certain localities in summer months has been suggested as possibly due to this cause. Repeated stimulation and increase in size of an existing granuloma may be brought about by re-infection from time to time with fresh larvæ. Such a lesion with ulcerating surface being naturally very attractive to flies. It has been found that such sores frequently arise when there has been a previously existing abrasion or wound.

Incidence. The incidence of adult habronemiasis appears to be very high throughout Australia. In Victoria, 37 out of 39 horses examined by Hill were found to be infested with one or more species, while in South Australia only one or two stomachs were found free of parasites in over one hundred examined. In the Sydney University Veterinary Clinic, of eleven horses *post-mortemed* in the first half of the year nine were found infested.

In South Australia and Victoria *Habronema muscæ* was most frequently found, occurring in nearly 90 per cent. of cases, and while *H. microstoma* was also very common, *H. megastoma* was less frequently met with. Of the nine cases mentioned above three contained *Habronema microstoma*, four *Habronema muscæ*, and eight *Habronema megastoma*. The number examined, however, is too small to estimate the relative frequence with which the three species occur here. It is probable that in tropical Australia and in other tropical countries Habronema is no less common, so that we must regard it as one of the most frequent nematode infestations of the horse in that country.

While it is hard to give an estimate of the frequence with which lesions caused by larvæ are found, it would appear that they occur more frequently in hot tropical countries than in more temperate zones, and depend, of course, to a considerable extent on the prevalence of flies during the hot months. In South Australia lesions are most frequently found on the prepuce and penis, while in Victoria lesions are

frequently met with on the conjunctiva. In Sydney, it is perhaps worthy of mention that 53 per cent. of all tumours met with in horses examined at the Veterinary Clinic from 1914-1921 were found involving the conjunctiva. While a number of these were true neoplasms, some were of habronemic origin. In parts of New South Wales granulomatous lesions in horses, popularly known as swamp cancers, are met with, but whether these are habronemic I cannot at present state. In the Solomon Islands the condition known as swamp cancer is said to be met with in 75 per cent. of horses, and there is reason to believe that this is also caused by habronemic larvæ, as in at least some cases larval remains have been found in the lesions.

It has also been suggested that the seasonal conjunctivitis known as "bung eye," and occurring during the summer months in hot regions in Australia, is due to Habronema (12), and it has been shown experimentally that larvæ deposited on the conjunctiva of man has produced conjunctivitis.

The percentage of flies infected varies in different localities, but up to 33 per cent. of flies in a Brisbane stable have been found, by Harvey Johnston, to be infested with Habronema spp.

Diagnosis of Habronemic Infestation. Diagnosis of the presence of adult Habronema is unfortunately difficult. As has been mentioned, the eggs are very small, and in addition are very transparent, so that their detection in fæces is difficult. Probably by sieving and centrifuging fæces by Hall's method, one would be able in some cases to demonstrate the embryos. By the flotation method of Vadja, I have been unable to find embryos of Habronema, though this method is excellent for Strongylid and Ascaris eggs. As the stomach contents are often found on *post-mortem* to be swarming with Habronema embryos, it is quite possible that washing out the stomach with a stomach tube and collecting and sedimenting the ingesta might be efficacious. When one is operating on an empty stomach and the water is pumped in under pressure some adults might even be washed out. In the absence of other diagnostic features, or of evidence of other parasitic infestation, one would be justified in suspecting habronemiasis when there are symptoms of chronic gastric catarrh, capricious appetite, debilitated appearance and harsh coat, while the animal tires easily at work.

The diagnosis of Habronema in the lesions caused by larvæ can only be definitely made where one can demonstrate the larval remains in the necrotic areas. Where, however, one has small yellow areas of necrosis occurring in a granulomatous mass on the mucous membrane, or where there has been a previously existing wound or abrasion, there is a strong probability of its being of habronemic origin, even where no larval remains are found. It is known that in old-standing lesions where there has been no re-infection all traces of larvæ may disappear.

Treatment. There is considerable difficulty in estimating the efficacy of medicinal treatment on the living animal. Worms that are killed in the stomach then become merely inert protein material, and are digested and disintegrated in their passage along the alimentary tract. Because of this fact, one cannot collect them in the fæces and so demonstrate the efficacy of treatment. Owing to the difficulty in determining the presence of their eggs in fæces, one is unable to compare the egg production before and after treatment as can be done with other helminth parasites, and by which one can gauge the completeness or otherwise of treatment adopted. Hall (15) has found that where worms are covered with mucous neither carbon tetrachloride or ol. chenopodium are very efficacious, though probably killing the worms with which they come in contact. For this reason, too, we are unable to expect success against *Habronema megastoma* where they are buried in nodules. It is likely that repeated administration of anthelmintics in small doses would be most likely to be effective. As the slow poisoning produced by arsenic is so efficacious in the treatment of stomach worm in sheep, it is suggested that repeated administrations of arsenic might be advisable against Habronema.

For the lesions occasioned by larvæ, surgical interference is indicated where the tumours caused are operable. Such tumours should always be treated antiseptically and steps taken to prevent re-infestation.

Prophylaxis. It is in measures of prophylaxis rather than in medicinal treatment that one must look for reduction in the incidence of this infection. As has been shown it is necessary for the carrying on of the life cycle that Habronema embryos must infect fly larvæ of certain species. It is towards the prevention of this infection taking place that efforts should be directed. Effective destruction of manure is, then, indicated—as by this means one not only destroys Habronema embryos, but at the same time gets rid of fly larvæ, and so keeps down the number of adult flies. It must be admitted that these measures are more practicable in the city and towns than in the open country. In settlements, infection with *Habronema muscæ* and *megastoma* are carried by the house fly, *Musca domestica*, which is seldom met far from habitations, and dislikes venturing out into the sunlight. Where house flies exist round stables there is a sure source of infestation provided, but there is no reason why their numbers should not be very greatly reduced by efficient hygienic measures.

All manure should be collected from stables and their immediate vicinity at least once a day, and should be suitably conserved, so that it cannot be contaminated by flies nor act as a breeding ground for larvæ. Roubaud's (13) biothermic method consists in placing fresh manure each day in the centre of the manure heap where sufficient heat is generated by fermentation to kill both fly larvæ and Habronema embryos. Placing manure in tanks with water will also effectively destroy larvæ. Placing manure in fly-proof boxes is also quite a good method of conservation.

While *Stomoxys calcitrans* is generally said to prefer grass cuttings to manure as a breeding ground, it is quite evident that it frequently deposits its eggs

in manure and straw contaminated with urine and fæces, since it is only in these situations that larvæ can become infected with the embryos of *Habronema microstoma*. Therefore soiled bedding must also be conserved in such a way that it cannot act as a breeding ground. Fly traps in the vicinity of horse lines and stables will also do much towards keeping down the number of flies.

The above methods are all quite practicable and are very necessary in all stables in the city, whether they are large or small. They should also be employed in cavalry camps, especially where horse lines are fixed for any length of time.

In the country, where horses may become infected while running at grass, though far removed from stables and houses, prophylaxis becomes much more difficult, and is impracticable.

To prevent infection of wounds with larval habronema, where such infection is known to occur, they should either be protected by bandages or treated so as to render them unpleasing to the fly. Astringent dressings or ointments are indicated; the one renders the wound surfaces dry and hard, thus making it unsuitable for the escape of larvæ on to it, while oleaginous mixtures are not attractive to the fly.

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(Continued at foot of next column.)

Control of the Cattle Tick in New South Wales.*

By C. J. Vanderson, M.R.C.V.S.,
Chairman of the Tick Eradication Board.

The portion of New South Wales in which the cattle tick (*Margaropus Australis*) exists is confined to an area of about 60 miles square, situated in the north-eastern corner of the State, adjoining the Queensland border. The southern boundary is the Richmond River, while on the west the Tooloom and Capeen Range and the Clarence River defines the limit of the area, though very light and scattered tick infestations have appeared outside this line.

Situate within these limits is found every class of country, from rich alluvial flats on the watercourses to rough bushland of little or no value. Much of the country is hilly to mountainous, including the Macpherson, Richmond and main Dividing Ranges, with large areas of forest country scattered through it.

The whole area is very well watered, as, in addition to the three main rivers (the Tweed, Richmond and Clarence, with their tributaries) numerous creeks abound.

Scattered throughout the tick-infested area are hundreds of reserves and several State forests, the majority of which are unfenced.

The climate of the North Coast is peculiarly favourable to tick life. Owing to the warm temperature and humidity which exists all the year round, the process of egg-laying and hatching is hardly ever interrupted, though it is, of course, slower in the winter season. With the exception of infrequent droughts, no inhibiting factor exists for the development of the tick on the north coast of New South Wales.

The tick-infested portion comprises the principal dairying district of New South Wales, about two-thirds of the whole area being entirely devoted to dairying, the remaining third being used for the raising of beef cattle.

The dairy farms are, as a rule, large in area and—considering the fact that the cattle mostly run on the natural pastures—very heavily stocked. The average number of cattle on each dairy farm is between 80 and 90 head.

(Continued from previous column.)

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*Read before the Veterinary Science Section at the Pan Pacific Congress, 1923, University of Sydney.

In the western portion of the tick area the holdings are much larger, some beng over 10,000 acres in extent, and having thousands of cattle running on them.

It may be stated that, although the *Margaropus Australis* exists in New South Wales, it does not harbour the organism of tick fever or *Piroplasma bigeminum*.

The work of tick control in New South Wales falls, roughly, under three heads, viz. :—

(1) The prevention of the spread of tick fever from Queensland.
(2) To stop the further extension of the pest in New South Wales.
(3) To eradicate the tick (*Margaropus Australis*) from that portion of the State where it now exists.

With regard to (1) it may be stated that the means adopted have been very successful, as, during the period from 1906) when the tick was first discovered in New South Wales (to date, there have only been eight outbreaks of tick fever in this State. This result has been achieved by prohibiting the entrance of Queensland cattle into the quarantined areas, and also by the erection of a double fence along the Queensland border, enclosing a buffer area. The distance between these fences varies, being in several places only 15 feet apart. When it is considered that Queensland cattle infested with the pathogenic tick graze up to the border fence, the degree of protection this fence affords is remarkable.

(2) To prevent the pest spreading to clean country, the known infested area is placed in strict quarantine, and cattle from it are only allowed into the clean portion of the State after an inspection which fails to discover ticks and two dippings, at an interval of from five to ten days, in a dip mixture containing 8 lbs. of arsenious oxide to 400 gallons of water. After the inspection and dippings have been carried out under the supervision of an inspector, a permit is given to leave the quarantine within ten hours of the last dipping.

Grass seed must be fumigated, and hides treated with salt to ensure destruction of ticks, and a permit obtained from an inspector before they can be removed from the quarantine.

In spite of all precautions, however, and the expenditure of £700,000 in 16 years, the pest has gradually extended further south.

(3) From a State point of view, the complete eradication of the tick is an urgent necessity. While the parasite remains on New South Wales soil, the possibility of the cattle in the infested area being destroyed by tick fever is always to be feared, while the extension of the pest to fresh country is an ever-present danger.

As one living female tick may be sufficient to re-infest a large district, it is clear that nothing short of a system which will annihilate the last individual tick can be considered to be completely successful.

Ticks have existed in New South Wales since the year 1906, and it is worthy of remark that during the whole of that period the State Department of Agriculture has been engaged in fighting the pest. The task of eradicating the tick from this area is one of peculiar difficulty. As already pointed out, the climate and meteorological conditions are most favourable to tick life. The topography of the area, with its mountain ranges, big rivers, numerous creeks, and large tracts of forest country, are all against successful prosecution of the work, while the unfenced Reserves and Crown Lands, and large, badly-sub-divided holdings, prevent that perfect control of stock which is so necessary a factor in tick eradication.

The excessive rainfali which frequently occurs on the North Coast presents, by itself, a big problem.

The incessant rainfall (of which the author gives figures) which fell from January to June, 1921, is by no means an exceptional occurrence, made the work very diffcult and, in some cases, impossible. Floods made it necessary to allow cattle off infested farms to be driven in any direction to save their lives, thus causing fresh country to be infested. Creeks were constantly in flood, thus preventing inspectors visiting farms ; yards were quagmires and cattle up to their bellies in mud ; dips were flooded, and cattle could not be treated at the required intervals to prevent female ticks maturing.

There can be no question that heavy rainfall causes ticks to be spread to fresh localities.

It has been recognised for many years that engorged females' eggs and seed ticks can be carried from a pasture by running water, and lodged in another place without being injured in any way.

In New South Wales, with its many small steams subject to frequent floods of short duration, and its many farms situated on hills where the water runs off with great force during heavy rains, we have the most perfect conditions for spreading ticks by rainfall.

With the handicaps to successful working I have given, it is a matter for congratulation that the total area has been so slightly increased, though it must be admitted these phenonema have hampered the work within the area.

The system of tick eradication adopted in New South Wales up to the present has been to divide the total quarantined portion of the State into a number of separate areas, sub-divided in conformity with topographical conditions, in which cleansing operations are carried out. Each area is in charge of an inspector, who has a staff of assistant inspectors under his control, varying from 20 to 60 according to the size and degree of infestation of his area.

The duty of each inspector is to examine all stock in his area for ticks at regular intervals of not less than 21 days during the months October to June, and during the months July to September, inclusive, at intervals of not less than six weeks.

When any holding is found to be infested, all cattle running therein are treated as directed by and to the satisfaction of the inspector, and treatment is continued every 14 to 18 days until they have been treated not less than four or more than six times. At the end of that period, inspection is again resorted

to and, until ticks are again found, no further dipping or spraying is enforced.

No cattle are allowed off infested holdings unless dipped or sprayed as directed by the inspector.

Cattle from clean holdings are allowed to move to other holdings on inspection only, unless they pass over infested country, in which case they are dipped or sprayed on arrival at their destination.

No person can remove stock off any holding within a quarantine without a permit from an inspector.

Without going into the merits of this sytem of eradication I have just briefly outlined, I will quote the results obtained during the past three years in the various quarantined areas:—

PROPORTION OF INFESTED CATTLE TO THE NUMBER INSPECTED.

	Year ended		Examined
CASINO AREA,	30/6/21.	1 head infested in every	129
	30/6/22.	1 „ „ „	355
	30/6/23.	1 „ „ „	729
BANGALOW AREA,	30/6/21.	1 „ „ „	480
	30/6/22.	1 „ „ „	1554
	30/6/23.	1 „ „ „	1683
NIMBIN AREA,	30/6/21.	1 „ „ „	176
	30/6/22.	1 „ „ „	2200
	30/6/23.	1 „ „ „	4982
L'SMORE AREA,	30/6/21.	1 „ „ „	2265
	30/6/22.	1 „ „ „	7060
	30/6/23.	1 „ „ „	42664
KYOGLE AREA (Northern).	30/6/21.	1 „ „ „	287
	30/6/22.	1 „ „ „	411
	30/6/23.	1 „ „ „	336
KYOGLE AREA (Southern),	30/6/21.	1 „ „ „	736
	30/6/22.	1 „ „ „	263
	30/3/23.	1 „ „ „	160
BONALBO AREA,	30/6/22.	1 „ „ „	443
	30/6/23.	1 „ „ „	1212
THE GORGE AREA (formed into separate area in 1921).			
	30/6/22.	1 head infested in every	5
	30/6/23.	1 „ „ „	191
WOODENBONG AREA,	30/6/21.	1 „ „ „	65
	30/6/23.	1 „ „ „	2929

The only area not mentioned is the Tweed, and in this portion of the quarantine the results of the system I have outlined were as follows:—

Holdings infested to June,	1916.....	236
„ „ „	1917	356
„ „ „	1919.....	381
„ „ „	1920.....	599
„ „ „	1921.....	674

The figures for 1918 are not given, owing to the fact that compulsory dipping was in force for a portion of the year. This fact no doubt explains the slight increase of infested holdings in the year 1919.

It may be stated that there are 1,231 holdings in the Tweed area, roughly 900 of which have been at one time or another infested, and the Departmental records show that the vast majority of these farms have been infested more than once, and some have been cleaned and re-infested as many as eight times.

The same result is indicated in the Southern Kyogle area, where ticks are spreading rapidly.

Whatever results may ultimately be attained by a continuance of the present system in the lightly infested portions of the quarantine area, it appears to be clear that once a certain degree of infestation has been reached, the method of only treating farms on which ticks are found is quite useless to even check the spread of the tick. One is forced to the conclusion that the only means of dealing effectively with any area in which more than a few farms are infested is to treat every head of stock in that area.

The Board of Control decided to abandon a scheme of eradication which was clearly unsuited to conditions on the Tweed, and to substitute for it compulsory treatment of all stock in that area at intervals of 14 days. This decision raised such a storm of protest from stockowners that the Government of the day abandoned the idea of eradication work in the Tweed Quarantine. The attitude of the stockowners in this matter was no doubt influenced by the poor condition of their cattle during the droughty conditions prevailing at the time.

In any scheme aiming at complete eradication of the tick, it is certain that the principal innovation must be treatment of cattle at shorter intervals than those hitherto advocated. This is indicated by past practical experience, field experiments, and the study of the life-history of the tick.

In experiments with arsenical fluids conducted on heavily-infested herds in Queensland by the New South Wales Department of Agriculture, (*) and corroborated more recently by the Institute of Science and Industry, it has been clearly shown that whatever concentration of arsenic and saponified tar is employed, a more or less constant proportion of surviving ticks may be expected. Furthermore, the condition of development of these survivors is such as to indicate that they were in the second moulting stage at the time of treatment. (Tests quite recently carried out under the auspices of the Institute of Science and Industry with artifically infested cattle at the Yeerongpilly Veterinary Experiment Station, by comparing the number of survivors on those cattle on which the majority of ticks were in the second moult on the day of treatment with those on which the ticks were in other stages of development, support this contention.)

Such being the case, it is clear that, in order to destroy the ticks in what may be termed the "resistant phase" of the second moult at time of treatment, it is necessary to treat again before it is possible for such ticks to engorge, drop off, and re-infest the pasture. This phase, according to the best authorities, is generally not less than four days after emergence from the moult (‡). The necessity for a very short interval between dippings for eradication work is thus strongly indicated.

(*) Cohen, Experiments with Arsenical Dips; *Gazette*, April, 1923.
(‡) "Cattle Fever Ticks," B. 1057, U.S. Dept. of Agric.

The chief (but not only) objection hitherto raised to frequent treatments, and it must be admitted with some slight degree of justification, is the fear of injury to the cattle from the effects of arsenic on the skin. Fortunately, however, it has been conclusively proved, both by Mr. Cohen (†), and later by the Institute of Science and Industry (results not yet published) that the number of survivors after one treatment with a fluid at half-standard strength is not appreciably greater than with a full-strength medicament. This being the case, one of the main objections on the part of stockowners to former proposed attempts at eradication may now be considered to have been removed.

The experimental results above described have also a very important bearing upon the safeguarding of quarantine boundaries in connection with the movements of stock into clean country. Obviously, it is to the advantage of the cattle industry not only to minimise the possibility of injury from the effect of the arsenic, but also to reduce the time during which stock must be detained between the two treatments necessary when leaving a quarantine area.

The question may arise, and has in fact already been brought forward, as to the likelihood of the efficacy of eradication operations, or of the treatment of stock leaving quarantine being seriously affected by the incidence of rainfall (a by no means uncommon occurrence on the North Coast) following any particular dipping. Experiments now in progress tend to show that, no matter how complete the washing caused by rain, no adverse results are experienced if four hours elapse between treatment and such rainfall, and there are indications that before long we may be able to prove that no ill-effects may be feared from rain falling after a considerably shorter interval than four hours.

At this stage it may be as well to institute some comparisons between the methods adopted in America and in New South Wales.

In New South Wales the State provides—free of cost to the stockowners—all the personnel and the material required for tick eradication. While the State does all the work, there is practically no assistance whatever from the local governing bodies.

The American system appears to be the direct antithesis of ours, inasmuch as it compels the actual work of eradication to be carried out entirely by the local governing bodies, who pay all expenses with the exception of educational propaganda and supervision, which is provided by the Federal and State Governments in co-operation. There is the closest co-operation between the Federal and State Governments and the State Counties, and each contributes something to the common cause. The Federal authority does not extend beyond control of interstate movement of stock. In tick eradication the Federal Bureau operates entirely through co-operation with the State and County authorities. It appoints and pays the salary of a Supervising Veterinarian who is experienced in the work for each State, as well as a certain number of other supervising Officers, generally Veterinary Officers of the Department, the number depending on the conditions prevailing in each State.

In addition, the Bureau, representing the Federal authority, studies the biology of the tick and the effects of arsenical dips in its destruction, and by so doing arrives at the best means of destroying it. It also conducts a propaganda campaign for the education of the public generally, and to furnish reasons for carrying out the work.

Summed up, the Federal authorities devise the best scheme for eradication founded on its experimental work, and also provide a trained staff to demonstrate and control the methods it advocates. The State passes legislation to enable the Federal bureau's scheme to be put into operation, and provides a certain number of supervisors, while the onus of providing the dips and other necessary materials is cast upon the Counties, who also pay the salaries and expenses of the dip inspectors.

Here we get true co-operation in which each section takes its allotted part without over-lapping.

The United States is fortunate in having a system of government which is so adapted to the work and lends itself so well to co-operation. In this respect, it must be admitted that it possesses an advantage in its more highly organised system of local government, which is far more complete than in Australia.

The American system makes the actual working details of tick eradication the business of the people, whereas the New South Wales system concentrates all the work performed by the United States Federal, State and County authorities in the Tick Board of Control.

There appear to me to be many very good reasons why the Federal Government of Australia should take a more active part in dealing with the tick question. In the first place, the tick is a menace to two of the principal industries of every State of the Commonwealth, and is most decidely a question of national importance. The Federal Government should, therefore, in the interests of the States at present free from the pest take an active part in preventing an extension of the tick-infested area.

Again, in the interests of the States harbouring the parasite, the Federal Government should encourage in every way the efforts to reduce the area of infestation.

It is not only financial assistance that is required, but active participation in the struggle. There is no doubt that had the Commonwealth Government possessed the necessary machinery action in the direction suggested would have been long ago taken. It is true that adequate facilities for investigational work are provided by the Federal Institute of Science and Industry, acting through the State officials, but until at least the nucleus of a Bureau of Agriculture as required by the Institute of Science and Industry Act has been established, nothing in the nature of administrative work can be undertaken by the Federal Government.

The work of dealing with the tick in Australia requires to be put on a sound foundation, and the

(Continued at foot of second column next page.)

(†) Cohen, Experiments with Arsenical Dips; *Gazette*, April, 1923.

The Veterinary Record.

21st June, 1924.

CONCERNING SHOWS.

This is the period of the year when agricultural shows and horse shows are in full swing, and a visit to any one of them is of interest to the veterinary surgeon from many points of view. There is the educational side, by which we mean that much can be learned from a close inspection of the exhibits, and much information of a nature valuable to the veterinary surgeon in country practice can be acquired by conversation with exhibitors and those closely connected with breed societies and the pursuit of agriculture generally. Then, again, there is the social side, for at the local country show the practitioner is certain to come in contact with a large number of his clients; meeting them in a different atmosphere from that which obtains when he is called in to attend their sick animals. He is asked in a spirit of friendliness to give his opinion on the merits or demerits of an exhibit; or even to explain why such an animal is placed by the judges above another.

All this goes to show how essential it is for a country practitioner to be *au fait* wth the points of the different breeds of agricultural animals, and the annual show gives him the opportunity to prove his knowledge, which will help to establish him in the confidence of stock owners.

From the veterinary surgeon's point of view there is also the sad side. At nearly all shows the main view from the grand stand is a succession of large and imposing stalls occupied by firms who deal with so-called "Veterinary" remedies and instruments. These stalls are usually in charge of gentlemen with wonderfully persuasive tongues, who issue enticing invitations to all and sundry to retire behind the barricades of "black oils," "red drenches," "condition powders," etc., etc., with doubtless resultant profit to their firms. All this, of course, means a certain amount of loss to the veterinary surgeon, who generally supplies medicines in the district, and perhaps incidentally to the purchaser of the nostrums. Be that as it may, it is the M.R.C.V.S. of whom we are thinking.

At a recent show visited by us, we noted four qualified veterinary surgeons giving their services gratuitously as inspectors, one as veterinary consultant, while two were assisting in the judging of horse shoeing in an honorary capacity; and yet there were at least ten to fifteen large stalls in the most conspicuous position in the show yard advertising quack "cure alls," and one large firm of instrument makers—the latter largely supported by the Veterinary Profession—selling and explaining to all and sundry the use of instruments which surely should be kept in the hands of qualified men. It is not an overstatement of fact to say that some of these instruments had been suggested or invented by veterinary surgeons. Surely this is a state of things that should never have been allowed to exist, and should be remedied in the future. In the smaller local shows it is generally the local practitioner who is the leading spirit of the show, and very largely responsible for its success or otherwise. Is he to continue to put in all the work entailed to promote a popular show only to find himself creating a market that reacts adversely to his interests? This is, after all, a professional matter, and it is incumbent upon practitioners to see that an end is put to this state of things.

(*Continued from previous page.*)

first contribution to the problem of a Federal Bureau of Agriculture should certainly follow the lines of the work carried out by the United States of America Bureau before launching their anti-tick campaign in 1906. The data collected by the Bureau relating to the biology of the cattle tick, the most effective means of destroying the parasite, the reasons for its destruction, and also the training of special officials to carry out the work, paved the way for the present efficient methods employed in America.

Work of a similar nature is required in Australia.

It should not be overlooked that, climatically considered, the whole of the coastal area of Australia constitutes a suitable habitat for the tick, and there are no natural conditions prevailing in, say, Victoria, to prevent wholesale infestations once the parasite is introduced.

Although in her efforts to check the spread of the pest, New South Wales is incidentally benefitting Victoria, in the absence of Federal control the whole burden of the expenditure involved falls upon the taxpayers of the former State, while the Victorian pays nothing.

Many further reasons could be given for the establishment of Federal Control, but the recommendations of the Special Committee which met in Sydney in September, 1916, and which definitely recommended this course, give full reasons for doing so.

CLINICAL REPORT.

Report of case of Actinobacillosis and Mixed Infection in the Horse. Treated with Autogenous Vaccines.

By CHARLES HARTLEY, F.R.C.V.S., Lincoln.

Subject.—Seven-year-old brown trades gelding, belonging to jobmaster. Condition and soundness good.

History.—Owing to lack of work, turned out on public common. Found on September 13th, 1923, very lame on near fore leg and brought to stable with difficulty (about one and a half miles).

Symptoms.—When seen there was acute lameness, with swelling and tenderness, in middle region of inside of the forearm, which had a place, two inches by one inch, devoid of hair, but no wound or abrasion.

Diagnosis.—Cellulitis and periostitis.

Prognosis.—Favourable.

Treatment.—Sod. Chlor. ℥viii., Aquæ Cii., by stomach tube. Copious, warm fomentations and mild antiseptic and sedative lotions.

September 15th.—Saline draught repeated, swelling and pain increasing, temperature 103° F. Obvious signs of pus formation, but no pointing; 17th, 30 c.c. of mixed infection phylacogen (P. D. and Co.); 18th, 30 c.c. of mixed infection phylacogen; 20th, leg opened below knee, in middle third of radius, and in armpit. Copious discharge of blood-stained pus, which quickly ceased. Very little diminution in tenderness and pain. Leg enormously enlarged from coronet to elbow, hard, hot and painful; 30th, hardness spreading to triceps and pectoral muscles; patient thin, weak, no appetite and prognosis grave.

October 9th.—At this date a swab was sent to Mr. W. M. Scott, F.R.C.V.S., Bridgwater, who reported the presence of (*a*) actinobacillus; (*b*) streptococcus brevis; (*c*) staphylococcus albus and aureus; and from these he prepared an autogenous vaccine, preparatory to which a stock vaccine was sent. Subsequent to the latter, there was an arrest of the alarming symptoms, but no visible improvement was noted in the leg. 15th, first inoculation of autogenous vaccine, repeated on October 22nd, 28th, November 3rd, 12th, and 17th, in graduated doses.

Recovery was slow, but steady and uneventful, and I consider the results to be due to the vaccine treatment. It has taught me that the general practitioner should seek the aid of the bacteriologist earlier and more frequently in such cases. There is a little filling in the region of the fetlock and coronet, which is reduced by exercise. The horse is working hard and regularly, and has never been lame since put to work.

Victoria Veterinary Benevolent Fund.

ANNUAL GENERAL MEETING.

The annual general meeting of the Victoria Veterinary Benevolent Fund was held at 10 Red Lion Square, on Thursday, June 5th, when the following were in attendance:—Mr. S. H. Slocock (President) in the chair, Major J. Abson, Major-General Sir L. J. Blenkinsop, Mr. H. J. Dawes, Mr. B. Gorton, Mr. H. P. Hogben, Mr. J. W. McIntosh, Major-General Sir John Moore, Mr. W. D. Rees, Mr. T. F. Spencer, and Mr. E. Alfred West.

1. The Secretary read the notice convening the meeting.

2. Apologies for absence were received from Mr. P. J. Howard, Mr. G. P. Male, Mr. F. G. Samson, and Major P. J. Simpson.

3. The minutes of the previous annual general meeting were read and signed as correct.

4. *Election of President.*—On the proposition of Mr. McIntosh, seconded by Mr. West, and supported by Major Abson, Mr. S. H. Slocock was unanimously re-elected President for the ensuing year.

5. *Vice-Presidents.*—It was resolved that the following gentlemen be elected Vice-Presidents for the ensuing year:—Major T. M. Inglis, Major-General Sir John Moore, Mr. A. Spicer, and Sir Stewart Stockman.

6. *Honorary Secretary.*—It was resolved that Mr. P. J. L. Kelland be re-appointed Honorary Secretary for the ensuing year.

7. *Honorary Treasurer.*—It was resolved that Mr. E. Alfred West be re-appointed Honorary Treasurer for the ensuing year.

8. *Auditors.*—It was resolved that Messrs. Woodhouse and Wilkinson be re-elected Auditors for the ensuing year.

9. *Annual Report.*—The Annual Report and Statement of Accounts were submitted, and the President drew attention to the fact that the number of subscribers to the fund had been continuously declining during the past few years, the total amount of subscriptions being only £369, as compared with £381 for 1922 and £430 for 1921. The total number of subscribers was 390, not more than 11 per cent. of the members on the register. He expressed the hope of the Council that a larger number of members would be found to subscribe in the future, and drew attention to the amount of assistance given, costing over £1,016 for the year.

Mr. Dawes suggested that the local veterinary associations should be asked to make a special reference to the fund at their meetings, and stated that the Midland Veterinary Association had recently made an additional donation of £5. He thought that a number of members now subscribing 10s. 6d. a year would, if approached, increase the amount to £1 1s. 0d.

Mr. Spencer made the suggestion that the secretaries of the Associations should be supplied with a

collecting box to be used at meetings, and especially at the Societies' annual dinners.

On the proposition of Sir John Moore, seconded by Major Abson, the annual report and statement of accounts were unanimously adopted.

10. *Election of Council.*—The following gentlemen were elected to serve on the Council as representing the members of the Fund:—Major-General Sir L. J. Blenkinsop, Mr. F. L. Gooch, Mr. G. H. Locke, Mr. W. Roots, Mr. F. G. Samson, Mr. H. Sumner, Mr. R. C. Trigger, Mr. J. Willett, Professor G. H. Wooldridge and Mr. W. Jackson Young.

A vote of thanks was passed to the President and the meeting terminated.

BRANCH REPORT.

Scottish Branch.

A meeting of the Scottish Branch of the Association was held at the Station Hotel, Perth, on June 7th, 1924, under the presidency of Mr. W. Wallace Peggie, F.R.C.V.S.

During the morning session Prof. W. M. Mitchell, M.C., B.Sc., M.R.C.V.S., of the Royal (Dick) Veterinary College, Edinburgh, read a highly-instructive and scientific paper on "Canker of the horse's foot." An animated discussion was opened by Major A. Spruell, D.S.O. (Dundee), and was maintained by Messrs. Inglis, J. Taylor, A. Gofton, J. Brown (Perth), W. Nairn, G. Howie, and A. Pottie.

After adjournment for lunch business in connection with the Scottish Branch was conducted:—Nomination of officers for ensuing year. The following were unanimously elected:—President, Mr. Hugh Begg, F.R.C.V.S., Hamilton; Secretary, Mr. J. Howard Jones, O.B.E., M.R.C.V.S., Edinburgh.

Apologies for absence were received from a large number of members and guests, including a letter from Mr. Hy. J. Dawes, F.R.C.V.S., President N.V.M.A.

After further business in connection with veterinary representation on the National Dairy Council for Scotland, Mr. Livesey, General Secretary N.V.M.A., whose presence was warmly welcomed by all present, briefly addressed the meeting.

Dr. E. P. Calder, M.B., of Stage Hall Farm, Stow, then read a paper, "Experiences in the formation of a tubercle-free dairy herd and the production of certified milk." The recital of Dr. Calder's experiences and his happy style of expression and delivery aroused great interest and appreciation. The subject matter, needless to say, proved engrossing to an audience composed of veterinary practitioners, whole and part-time veterinary inspectors, members of municipal corporations, medical men, and veterinary students and those engaged in the dairying industry.

Dr. Calder, in a little over four years, has formed a tubercle-free dairy herd of over seventy animals, and produces from them a certified milk, so that he was able to speak upon the subject with first-hand knowledge, the result of experience, and he gave lucidly, too, the results of a keen observation during that experience.

Discussion was opened by Mr. Jas. MacAllan, M.A., B.Sc., M.R.C.V.S., of Aberdeen, who was followed by Messrs. A. Gofton, A. Pottie, Major Spruell, Mr. Anderson and Mr. J. H. Jones, all of whom expressed their appreciation of Dr. Calder's paper, and congratulated him upon the results of his efforts.

Among the members and visitors present were the following:—Messrs. T. M. Inglis, Forfar; J. Gibson, Dundee; G. W. Weir, Glasgow; Dr. O. Charnock Bradley; Dr. A. W. Whitehouse; Major A. Spruell; J. Macfarlane, Glasgow; G. Howie, Alford; J. Taylor, A. Gofton, J. Howard Jones, E. J. H. Sewell, and Prof. W. M. Mitchell, all of Edinburgh; W. Nairn, Blairgowrie; J. Brown, Perth; W. S. Lornie, Perth; Jas. MacAllan, Aberdeen; A. Fulton, Lochgelly; Jas. Henderson, Broughton; G. H. Livesey, London; Wm. Watt, London; Councillor Dr. Nasmyth, Edinburgh; J. Gibson, Edinburgh; R. Scott Little, Kenya Colony, etc., etc.

Publication of the above papers and extracts of discussion will follow in due course.

J. Howard Jones,
Hon. Secretary.

DIVISIONAL REPORT.

Lancashire Division.

Annual Dinner.

(*Continued*).

Dr. Veitch Clark, Manchester, proposed the toast of the Royal College of Veterinary Surgeons, saying that he much appreciated the honour of being asked to propose that toast which, he was sure, was really the toast of the evening. He felt, in proposing the toast of prosperity and welfare of the Royal College of Veterinary Surgeons, he was trusted with the honour and dignity as a representative of the sister profession, human medicine. There was no doubt at all that veterinary and medical work was all one science. He stated that the Royal Society of Medicine had now a Section of Comparative Medicine, and he was very pleased indeed to see it. The greatest advances in science had been through hard work, and there was still more hard work ahead. To be able to get on, the professions must co-operate. He felt that in asking the people present to drink to the welfare of the Royal College of Veterinary Surgeons he was asking them to drink to the welfare of his own profession. (Hear, hear.) The College was first chartered in the year 1844 and was the foundation of the Veterinary Profession. He wished to make a few remarks on two personalities. Professor O. Charnock Bradley, of Edinburgh, was the first veterinary surgeon with whom he worked. During the last twelve months he had been working with another well-known veterinary surgeon, and he was there that night, Colonel Brittlebank. He thought that

everyone would agree they were two good men. He felt that research should be encouraged more in the Veterinary Profession; there was no doubt about their having the men to carry out research, but they should receive encouragement. He noted the Mayor of Salford had made some remarks on foot-and-mouth disease. Well, it could only be prevented, or the preventative could only be found, by research. There had been much slaughter of animals, but the disease was still here. The Veterinary Profession was needed for the control of the milk supply, and there was nothing so important as that. Colonel Brittlebank had charge of that section in Manchester, and everyone knew how he was handling it. Why should not the farmers prosecute each other for selling milk as milk when it was not milk? It was up to the Veterinary Profession to assist the Medical Profession, not only in preventing foot-and-mouth disease, anthrax, etc., but the professions must work together in the channels of science. The Veterinary Profession was in the position of being able to do great things in this country. Thomas Carlyle wrote in his well-known book on the French Revolution, "Sovereigns may die and Sovereigns live, etc.," but in such an institution as the Royal College there was the material that could not die so long as the nation lived, and he asked everyone to rise and drink to the Royal College of Veterinary Surgeons, coupled with the name of Mr. Sumner.

Mr. SUMNER, in response, said it had been his lot on several occasions to respond to the toast of the Royal College of Veterinary Surgeons. He thought that the R.C.V.S. had more than justified its existence, and the Veterinary Profession was proud that, in the history of the College, they had always had the sympathy and support of the Medical Profession. In Government regulations it stated that a Medical Officer of Health would direct the veterinary surgeon. In some cases that was all right, but usually better results were obtained in co-operation of working, with good fellowship. It was only quite recently that he saw the conditions under which a veterinary surgeon to a local authority was appointed, and according to those regulations the medical officer of health was a mobile person who directed everything. But, in his opinion, it was a matter of personality, and the persons who held these offices. Much had been said about foot-and-mouth disease. The slaughter of cattle had not been advantageous to the Veterinary Profession; indeed, it was ruining the practices of a number of country practitioners. Also, with reference to research, there had been different Governments since the founding of the Royal College and all had been too poor to give a million of money for that purpose. They would be glad to see in the new budget more money for research. Dr. Clark's words had been very much appreciated, and he hoped there would be a better time soon for the Veterinary Profession.

Mr. BURNDRED, of Blackburn, proposed the toast of the Medical Profession; saying that his association with members of the Medical Profession was a long one—in fact, he was ushered into this world by a member of that esteemed body. (Laughter.) He had reason to think kindly of that particular member as his interest in his career through his school and university years was a great source of encouragement. Co-operation with the Medical Profession began early, as that practitioner, who was a part-time M.O.H. for a rural area, entrusted him with the water analyses for the district and they shared the fees. The university gave him the help of such men as Sir Rupert Boyce and Sir Charles Sherrington, and since then his intimate association with the profession had continued in the army and in public health work, where he was now associated in Blackburn with one of the most progressive M.O.H.'s in the country. As a result of that Association he was particularly gratified to have to propose the toast to the Medical Profession.

The history of the Medical Profession was one of great achievements. The discovery of the spirochæte of syphilis, followed by the preparation of 606, Sir Ronald Ross's work in connection with the anophyles, and the work of identifying another type of mosquito with yellow fever, had resulted in enormous benefits to mankind. The recognition of the causal organism of Malta fever, the investigations into hookworm disease, bilharzia, the spread of plague from rats to fleas and so to man, asepsis and antisepsis, the discovery of insulin, tsetse fly disease, all added lustre to the list.

The importance of the fly menace was of comparatively recent recognition, resulting practically in the elimination of typhoid fever, and a great reduction in the mortality from infantile diarrhœa. The wonderfully curative effect of sunshine, associated with the name of Rollier, in Switzerland, brought to his mind one of the saddest failures, or, should he say, omissions. Much of the work which he had lightly touched on had been associated with diseases of the tropics, but here, in this country of theirs, they allowed large numbers of children to become infected with tuberculosis by the ingestion of tuberculous milk, and spent a large amount of money in treatment which could be more usefully employed in prevention.

In associating the name of Dr. Osborne, the M.O.H. of Salford, with that toast, he was reminded that it required some great upheaval to awaken them to their responsibilities. The South African war showed that they were not a fit nation, and as a result, the School Medical Service was inaugurated; Dr. Butterworth being a pioneer of the work in Salford. The late great war came too soon to show much improvement due to this service, but he had no doubt that the future would bring its reward. He congratulated the Medical Profession on its work and asked them to join him in the toast to them.

Dr. OSBORNE, Salford, in response, said the lot of responding to this toast had fallen upon him in the absence of Dr. Butterworth. He was sorry Dr. Butterworth was not present, especially as he was not there to meet representatives of the Veterinary Profession. He was glad to see Mr. Whitehead had

been made President of the Lancashire Division. He thought that gentleman wore the laurel many a time when he did not deserve it. (Laughter.) However, he (Dr. Osborne) had not yet suffered any undue convalescence through Mr. Whitehead yet. In fact, many a time he had thought the latter too conscientious. Attention had been directed to the close relationship between the Veterinary and Medical Professions. There was one thing he would like to point out—the animal has not to be consoled like a human being. When the veterinary surgeon desired to apply treatment, he applied it. Dr. Osborne stated that he wished many a time he could apply treatment in the same way. (Laughter.) He stated he wished to congratulate Mr. Whitehead on his distinction as President of this Division. It was a great honour, and he also felt the Association were to be congratulated on their choice. (Hear, hear.)

Alderman HORNBY, Manchester, proposed the toast of the National Veterinary Medical Association. He stated he felt very embarrassed to be in the shoes of Professor Warrington Yorke, who was, unfortunately, not present. He had been asked at very short notice to propose that toast and hoped he would be forgiven for any lack of detail in his speech. He had very much enjoyed the hospitality of the L.V.M.A. up to the point where he had to propose that toast. He thought he had been chosen to do this because he knew the least about the subject, but he supposed it would be like blowing one's own trumpet to ask one of the Veterinary Profession to do it. However, the gentleman who was to respond to the toast was very well known to all, and was the President of the Association to which that toast was dedicated. He pointed out that Mr. Whitehead was at Manchester before he went to Salford. To eulogise Mr. Whitehead, therefore, was a compliment to Manchester. He stated that he had had a great deal to do with the Veterinary Profession as chairman of the Markets Committee, Manchester, and there were four veterinary surgeons attached to that Committee. Whenever there was a dispute over the condemnation of any food, he noticed that the decision of a veterinary surgeon was very rarely challenged. Also, with regard to foot-and-mouth disease, he thought something should be done quickly with regard to preventative measures. That terrible disease was throwing all the meat traders into the foreign meat trade, so he thought the N.V.M.A. might do good in regard to it. He had very great pleasure in proposing the toast to the National Veterinary Medical Association, coupled with the name of Mr. Dawes, the President.

Mr. DAWES, in response, thanked the proposer of the toast for the kind words he had expressed. It was a very proud moment for him when he was made President of the N.V.M.A., which boasted a large number of members, and its own journal. One might ask the question, "What is the outcome of the N.V.M.A.?" Well, the reply was that the N.V.M.A. was endeavouring to become a scholar to the British Medical Association. He mentioned Mr. W. Hunting as one of the pioneers. Men gave their time, money and brains for the good cause of the N.V.M.A., and very often it was the busy man who did that. Mr. Dawes said he usually read the reports of meetings of the various branches and he could not understand why any veterinary surgeon who was not a member of a veterinary medical association did not join. One of the successes of his life had been his association with the N.V.M.A. He stated that he saw a lot of Aberdeen men in London from their division of the N.V.M.A. and he never met such a busy body of men. They were arranging programmes, etc., for future meetings, and their whole interest seemed to be centred in the Association. It always gave him great pleasure to come to a meeting of the L.V.M.A. On his way to that meeting he turned up some papers for the year 1851. In these papers there was a record of Mr. Greaves calling a meeting and about twelve attended. The L.V.M.A. was formed in the year 1862 and was the fourth veterinary society to be instituted. The Association had always been a great one, and there were some gentlemen present that night who had done yeoman service. The "National" was on its trial, and he hoped all members would support it and make it one of the most successful Associations on record. It gave him great pleasure to respond to the toast.

Colonel BRITTLEBANK, in proposing the toast of "The President," said that many that night had tried to take the toast from his hands, but he must thank them for adding to the things he was going to say. He claimed an acquaintance with the President as long as anybody in that room. He had been intimately acquainted with Mr. Whitehead for many years. The L.V.M.A. honoured itself by choosing the President it had. Mr. Dawes, the worthy President of the "National," had spoken of the work that was being done, and they thought that the L.V.M.A. had a spoke in the wheel. The Veterinary Profession was intended to take a place in national history, not only in its own particular sphere in national history, but in all concerns. Colonel Brittlebank stated that Mr. Whitehead was a man he always admired. He was never still, he was tactful, and those who had watched his career were proud of it. Some of them were a little jealous of the reputation of the L.V.M.A., but they knew that in Mr. Whitehead's hands it was quite safe. The way Mr. Whitehead handled the recent outbreak of foot-and-mouth disease in Salford was a small indication of his worthiness as President. If all outbreaks could have been dealt with in the same way, the Ministry would have cause to congratulate themselves. Mr. Whitehead was closely associated with Colonel Brittlebank and no man could have a more loyal and indefatigable colleague than Colonel Brittlebank had. He originally proposed Mr. Whitehead for this office, and he proposed him with the fullest confidence. He said he was sure that the Association would be glad to thank Mr. Whitehead when his term of office expired. He now rose and asked them to drink to the health of the President.

Mr. WHITEHEAD, in response, said it was a very difficult thing to reply to that toast. He realised that he was in a position of trust and how difficult it was to follow the man who had occupied the position before him. It was an honour he had never aspired to. However, all he could say was that he would carry everything out to the best of his ability, and he thanked everyone for the toast.

Mr. WRIGHT proposed the toast to "Our Guests." He said he felt very honoured at having to propose that toast; also the L.V.M.A. was honoured by the presence of the guests and were delighted to entertain them. He was glad to see Mr. Livesey, Secretary to the N.V.M.A. and Mr. Dawes, the President. He thought the N.V.M.A. was a necessary Association; it had come to stay, and although it had not been long in existence, it had done great work and would still do greater work. It was formed by veterinary surgeons who saw that, without it, the profession was not going to progress as it should do. He asked Mr. Livesey who, he stated, had shown himself by his enthusiasm to be the right man in the right place, to respond. Energy and enthusiasm was what was necessary in the Association, and he asked that everyone should rise and drink to the health of "Our Guests."

Mr. LIVESEY replied that it gave him great pleasure to respond to that toast, and he thanked the proposer for the kind words he had chosen. He had no doubt that other guests felt as he felt for the display of true Lancashire hospitality. He was very pleased to be present that night as a Lancashire man. One of his duties was to go about from one place to another to see how the Divisions were progressing, and nothing gave him greater pleasure than to attend a meeting of the L.V.M.A. The National Veterinary Medical Association was doing its very best for the profession. It was a big body of men working for a good cause. The work to be done was enormous. There was the interest of a large number of members to be considered. Every morning there were hosts of letters to be gone through from veterinary surgeons in all parts of the world, desiring information in connection with the Veterinary Profession. There were several Committees, which discussed Parliamentary matters and all matters of interest to the profession, and all these facts, taken together, showed there was a need for such an Association. The Association was there to look after the interests of the veterinary surgeon. It was in a very strong position financially. The *Veterinary Record*, which was always a matter of concern, had now been increased, and it was hoped that the journal would soon be twice its present size. Mr. Livesey stated he thanked the L.V.M.A. for his invitation that night, and everyone would be made welcome to a visit to the N.V.M.A. offices, when any assistance they required would be willingly given.

Captain PARKER proposed the toast to the "Ladies," and Mrs. URMSON, J.P., in response, said it gave her great pleasure to respond. She thought the Veterinary

(Continued at foot of next column.)

NOTES AND NEWS.

The Editor will be glad to receive items of professional interest in these columns

Diary of Events.

June 23—D.V.S.M. Written Examination.
,, 25-28—D.V.S.M. Oral and Practical Examinations.
July 2—N.V.M.A. Council and Committee Meetings.
,, 3—R.C.V.S. Committee Meetings.
Annual Dinner, Savoy Hotel, 7 p.m.
,, 4—R.C.V.S. Council and Committee Meetings.
,, 5—R.C.V.S. Written Examinations.
,, 9—R.C.V.S. Oral Examinations begin.
,, 18—Mid-West and S. Wales Division Meeting, at Bath.
Sept. 8-15—N.V.M.A. Annual Congress at Aberdeen.

The arrangements are now practically complete for the Congress at Aberdeen, which takes place from September 8th to the 15th. The scope of the meeting has been much enlarged as compared with any held in previous years. In the first place, it will extend over a whole week, and in the second it is to be divided into two sections, at which papers will be discussed. There will be the usual general section, but, in addition, there will be a section devoted entirely to subjects of special interest to veterinary inspectors and those engaged in Public Health.

* * * *

A full programme of the Congress will be issued shortly, but in the meantime we may state that the Annual General Meeting is likely to be held on Monday, September 8th, that on Tuesday, Wednesday and Thursday mornings there will be papers and other subjects discussed, while in the afternoons there will be such attractions as visits to the Rowett Institute and other places, and some operations and demonstrations. Friday will be occupied by a visit to the Scottish National Sports, known as the "Braemar Gathering," for which alone many hundreds of people travel up to Scotland. Every evening there will be entertainments, and on Saturday the Congress will be formally closed.

(Continued from previous column.)

and Medical Professions had done a good deal of work, the Medical Profession especially with regard to child welfare. In Manchester there was one of the finest child welfare centres in England. She thought that ladies, in the past, had not been considered enough—now they have them on City Councils and in Parliament, and she thought that their advice, especially on child welfare, domestic matters, etc., went a long way.

JOHN SPRUELL, *Hon. Secretary.*

Special low railway fares will be allowed to those attending the Congress who make use of the voucher, which may be obtained from the General Secretary. Any number of vouchers may be had by any one applicant, either for himself or for friends, provided he asks for them in reasonable time, and it is hoped that full use will be made of this facility.

* * * *

We have received some copies of a circular and testimonials regarding a "cure" for foot-and-mouth disease, invented by John Shaw, M.D., London. We have been informed that these circulars are finding their way into the hands of clients of our members, and that Dr. Shaw is being called upon to treat cases of the disease. We should be glad to have any information on this subject from any of our members who may be aware of the facts.

CORRESPONDENCE.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

The National Veterinary Medical Association.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I had hoped that ere this someone with more time and inclination for letter writing than I would have replied to Professor Gaiger's long, querulous letter in your Journal, if only to point out the many inaccuracies it contained.

The fact that he is a member of the Councils of the R.C.V.S. and the National makes this misrepresentation of facts more serious, as it might lead some members of the profession to think that there really is something in his charges.

His very first remark that "as a result of the methods adopted, first with regard to the tuberculin and secondly with the Therapeutic Substances Bill we have had the resignation of the Principal of the R.V.C," is misleading, as it had nothing whatever to do with the Therapeutic Substances Bill, and the resignation took place before the Biological Products Committee was formed, so that Committee certainly was not responsible.

I am especially sorry Professor Gaiger should have dragged in this regrettable incident, as I had hoped it was dead and buried for all time, and as Sir J. M'Fadyean is now a member of the Association. As to the threatened resignation of the Chief Veterinary Officer of the Ministry of Agriculture, I have made enquiries, and I am very glad to find that it is not correct.

Professor Gaiger's attack on the Biological Committee is particularly ungracious after the immense amount of work and trouble that was taken to enquire into the methods of standardisation and distribution of these products, and it was unfortunate that he was unable to give this Committee, though invited several times, the benefit of his vast experience in these matters, as other distinguished scientists were good enough to do; then he would have, perhaps, enlightened the "ignorance" of its members. It was discovered that the "average practitioners" on that Committee knew almost as much about the standardisation of tuberculin as did some of the manufacturers, some of whom had certain more or less scientific methods of standardisation, while in the case of others these were very empirical.

There was evidence that some tuberculin was practically useless.

It was also demonstrated very clearly that tuberculin could be bought by anyone from almost any chemist and used indiscriminately to the detriment of the Veterinary Profession and the tuberculin test itself.

The Committee felt that every endeavour should be made to alter this state of affairs, and I am quite sure this will have the support of all veterinary surgeons in the field who have to carry out the test.

When, therefore, a Bill was brought in by the Ministry of Health to deal with certain Therapeutic Substances, the Ministry was asked to specifically include Tuberculin with a view to its control.

The National would have been lacking in its duty to the Veterinary Profession had it not taken this step, after the repeated resolutions that had been sent up from various divisions on this matter. As to the standardisation of other biological products, although it was thought to be highly desirable to know the exact potency of the dose being administered and the purity of the substance, it was pointed out that it might increase the cost. Sir Stewart Stockman very candidly and straightforwardly expressed this opinion at the R.C.V.S. meeting, and for that reason I personally did not press for these veterinary biological products to be included in the Therapeutics Bill.

If Professor Gaiger was fearful of having to standardise his products, why did he not say so on one of the many opportunities he had? We all admire the good work that he has done in Scotland and would be sorry if it were hampered in any way.

For him to talk about a plot on the part of the National to induce the R.C.V.S. against its will to take certain steps is not only childish and absurd, but speaks very little for the intelligence of the members of that body.

The matter was fully discussed by the Parliamentary Committee, and when I moved the resolution with reference to uberculin, which was passed almost unanimously by the Committee, I had had no communication with the Secretary, nor had I been able to get to the meetings of the National on the previous day.

When the report of the Parliamentary Committee came before the whole Council, the resolution was carried by an overwhelming majority.

If Professor Gaiger thought the Ministry of Agriculture should have been approached, why did he not say so then? There would then have been no need for these carping criticisms.

It should be obvious to anyone the reason why the Ministry of Health was approached, but perhaps for Professor Gaiger's information I might briefly explain that the Ministry of Health has the control of the milk supply, that it will have to administer the Milk and Dairies (Amendment) Act, which is now in suspension, also the Milk (Special Designations) Orders; also that a Committee of the Medical Research Council is making researches into tuberculin and the tuberculin test, and it was thought

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VETERINARY SURGEONS must realise that the very **existence** of **the horse** on present day roads is **seriously threatened**—on the score of **impeding traffic—incapability** of **the horse** to get a **firm foothold** on **smooth surfaced slippery roads** (causing constant **delays** in **starting off—pulling up**, together with the frequency of being compulsorily drawn **out of line across other vehicles** in their efforts to **get going**) is now being **strongly taken up** by **those interested** in **mechanical transport** as being an **undeniable** and **not exaggerated nuisance.** (*Vide Daily Press Motors and Horse Prohibition*).

To the **Veterinary Profession in particular** and others having the slightest **interest** in the welfare of **the horse,** it is of **urgent, vital** and **national importance** to become acquainted with, and **afterwards recommend adoption** of, a **proved article** which **positively** overcomes the above-mentioned difficulties and **ensures** the **fullest efficiency** and **profit-earning capability** being obtained from **the horse.**

The best horse alive cannot do full justice to **himself** or **owner when** he is **slipping,** but is in fact **wasting time, profits, energy,** and **rapidly depreciating in value.** The constant strains and fatigue caused by a horse's continuous efforts to keep on his feet must tell in the long run on his constitution.

Economy consists in wise expenditure, and authentic records prove beyond doubt that **Gray's Pads pay for themselves many times over in the course of each shoeing,** where **time saved, freedom from accidents** (such as broken shafts and tackle) are taken into consideration.

Heavy Draft (for shoes $\frac{5}{16}$in. thick); **Roadsters** (for shoes $\frac{1}{4}$in. thick); **Polo** (for shoes $\frac{3}{16}$in. thick); **Racing** (for shoes $\frac{1}{8}$in. thick).

Full particulars with overwhelming proof from Sole Manufacturers:

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EQUINE PNEUMONIA

In treating a case of pneumonia, it is necessary to rouse the defensive powers of the blood as speedily as possible. A large number of gratified users testify that

PNEUMONIA PHYLACOGEN, EQUINE (P., D. & Co.),

is of the utmost value for the purpose. The animal responds more quickly to the Phylacogen than to vaccine or symptomatic treatment; the first injection evokes a decided immunising response within a few hours.

PNEUMONIA PHYLACOGEN, EQUINE, is a sterile aqueous solution of bacterial derivatives from cultures of D. pneumoniæ (numerous strains), Streptococcus and other organisms that are likely to play a part as complicating agents in a case of pneumonia. It directly stimulates the defensive powers of the system, and promotes the rapid production of antibodies which arrest the growth of the infecting micro-organisms and neutralise their effects, thereby cutting short the attack and preventing complications.

The writer of an article in the *Journal of the American Veterinary Association* for July, 1918, dealing with the treatment of army horses and mules in transport over seas, states: "In the pneumonia cases, Phylacogen was used with very excellent results. On one voyage a record was kept of each case, and it showed that out of 150 cases of pneumonia the loss was but 8, and post-mortems showed these to be well-developed cases of pleurisy with adhesions."

Further particulars will be supplied on request by

PARKE, DAVIS & Co., 50-54 BEAK STREET, REGENT STREET, LONDON, W.1.

that the control of tuberculin would be welcomed by them. Was there any reason to think the Ministry of Agriculture would have given better support? The matter has been before the profession now for many years. The chief veterinary officer of the Ministry of Agriculture, even at the National meeting at Brighton in 1908, made the following remarks:—"In the Argentine they keep the animals imported, I am sorry to say, from Great Britain in quarantine for thirty days—it used to be forty days—in order to re-test them, because they found so many that had passed the so-called tuberculin test in this country did not pass when they got to the other side. What is the reason of that? Simply that tuberculin is sold without control. It has got so bad that the farmers have approached the Board of Agriculture and asked us to do something to take on, as it were, under Government supervision, the testing by tuberculin of animals going abroad. I absolutely refuse to do anything of the kind until you control the sale of tuberculin and make it impossible for anyone but a veterinary surgeon to buy it."

That is sixteen years ago, and knowing that was his opinion, then we cannot but suppose he has used his best efforts to induce the Ministry to "control" tuberculin. If there were any new information to lead the Council to think the Ministry would be now more favourable, it should have been brought forward. It is quite immaterial, to me at any rate, which Ministry (or both) is approached so long as the result is satisfactory.

As to his further charge that at the meeting of the R.C.V.S. in Committee "free discussion was avoided," this is also most misleading.

Professor Gaiger was there, the President invited discussion, and there was no earthly reason why it could not have been discussed for any length of time.

As to the scathing remarks about the Council of the N.V.M.A., as he is a member of that Council, he is equally responsible with any other member; in fact, more so, if he felt wrong decisions are being taken, and he should be there to give his advice as others are, at a great cost to themselves, both in time and money. Whether we all agree with all that is written in the editorial columns of the *Veterinary Record* or not, we must at any rate acknowledge that the Editor and his Committee (of whom I am not one) are working whole-heartedly in what they believe to be in the interests of our profession.—Yours faithfully, G. P. MALE.

Reading, 17*th June*, 1924.

Veterinary Evidence in Police Courts.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—As one who is fast becoming a centenarian, I venture to add my word. We now recognise our kinship—thanks largely to the R.S.P.C.A.—to birds, beasts and fishes. The cruelty inflicted thirty or forty years ago is hardly known to the present generation. Public sentiment, voiced by the R.S.P.C.A. and similar societies, has to be thanked for this.

Those who know anything of the treatment of animals in many parts of Europe are proud of Great Britain. Apart from this, there are many things which give one "furiously to think."

1. Almost all London practitioners of repute decline, when possible, all police court work, whether for police, R.S.P.C.A., or defendant.

2. The police and R.S.P.C.A. rely, in most districts, on certain veterinary surgeons, not, of course, necessarily to support the evidence of their officers—to attend the Court when required.

3. That thirty per cent. of London working horses show in their limbs some deviation from the normal—in most cases a potential cause of lameness.

Also that in every big stud there are five per cent. of the horses on the border line—that is, almost unfit for work. As it is usually a matter of keeping down expense, there may be hesitation in casting these horses, or the manager and veterinary surgeon may differ. This brings one to

4. That the fine, except in cases of gross ill-treatment, is invariably paid by the firm employing the driver. The real offender often escapes—the manager, director, or dividend hunter.

5. That horses are never "stopped" without reason. Any horse "stopped" for lameness is, or was lame, at the time. Almost invariably lameness sufficient to lead to this means pain. This is "cruelty." This leads to further thought—veterinary expert v. defendant.

6. A conviction is usually obtained by the evidence of the veterinary expert. A conviction for cruelty is a very serious matter. Ten minutes' examination of the animal by the veterinary expert is about the limit, and is usually sufficient. In ordinary practice diagnosis, in some cases, is a matter of days. I have known a driver arrested, charged and convicted, before the firm could get their representative to the Court—on the evidence of the veterinary expert, "that the horse was suffering from sprained tendons," when, on return to stables, a "picked-up nail" was found to be the cause of the trouble. Anyway, this matters little. The horse was lame.

Finally:—

(a) None are infallible—even veterinary police court experts.

(b) Discuss the matter (it is usually possible) with the opposing veterinary surgeon.

(c) Never contradict the magistrate, even if he says that the animal is lame on the opposite leg. There is lameness, anyway. Admit the police evidence, which is usually fair, or ignore it, as the magistrate usually accepts only expert evidence with cause of lameness.

(d) When acting for the prosecution, do not forget that the defendant may sometimes tell the truth, and that when there is the least doubt as to your diagnosis, the defendant should have the benefit. It is very difficult for the expert witness to admit that his diagnosis may not be correct.

(e) Visit any of the three Courts where Capt. Hamilton Kirk is veterinary expert for the police, and thus learn the way to give evidence.—Yours faithfully, W. F. WIDDEN.

131 Lancaster Road, North Kensington, W.11.
3*rd June*, 1924.

The Editor begs to acknowledge the receipt of the following:—

Communications from Messrs. J. Howard Jones and Adam Kerr, Sir John Moore and Mr. R. H. Smythe.

National Veterinary Medical Association of Great Britain and Ireland, Limited.

EDITORIAL OFFICE: 10 Gray's Inn Square, London W.C.1.

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